

Name _____

Date _____

202 Review 5.1

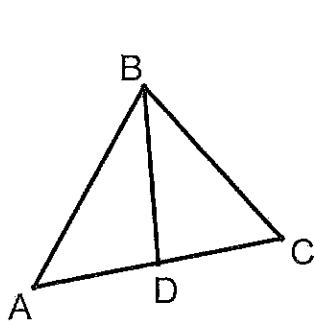
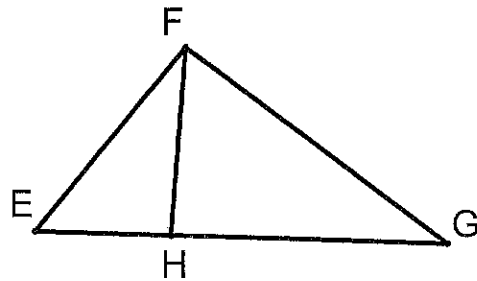
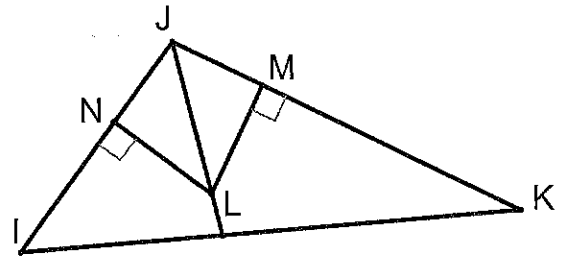
1. _____ What center is formed by the 3 altitudes of a triangle?

2. _____ What center is formed by the 3 medians of a triangle?

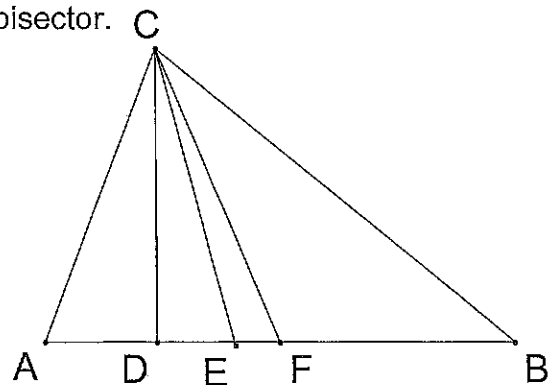
3. _____ What center is formed by the 3 perpendicular bisectors of the sides of a triangle?

4. _____ What center is formed by the 3 angle bisectors of a triangle?

Mark the following pictures with what you know to be true based on the given information. (either right angles or congruent segments or angles)

5. \overline{BD} is a median of $\triangle ABC$.6. \overline{FH} is an altitude of $\triangle EFG$ 7. \overline{JL} bisects $\angle IJK$.

Use the following diagram for #s 8-10.

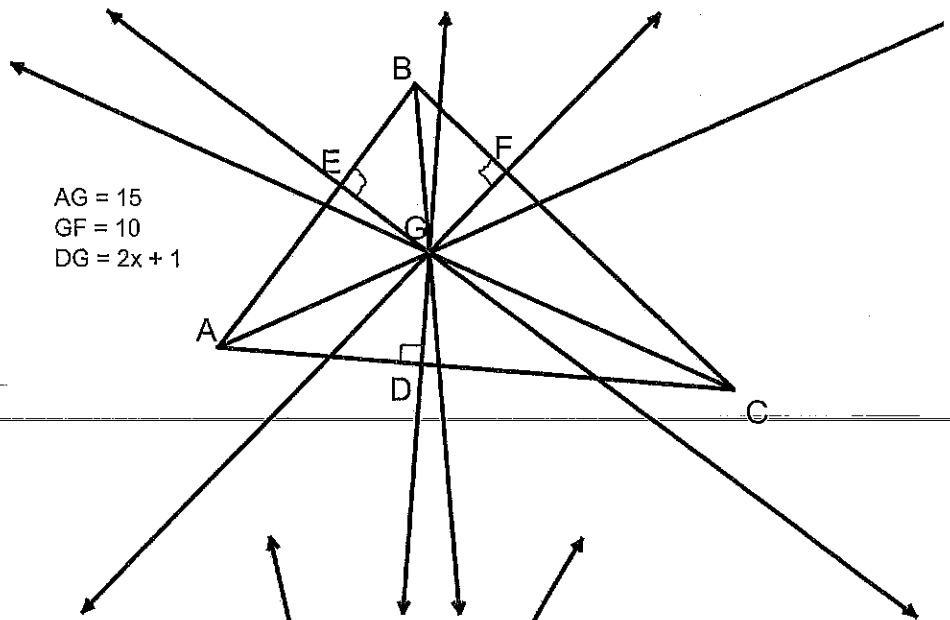
Given: $\overline{AB} \perp \overline{CD}$, $\angle ACE \cong \angle BCE$, and $\overline{AF} \cong \overline{BF}$. Identify each segment as median, altitude, angle bisector, or perpendicular bisector.8. _____ \overline{CE} 9. _____ \overline{CF} 10. _____ \overline{CD} 

11. G is the incenter.

$x = \underline{\hspace{2cm}}$

$$\begin{aligned} AG &= 15 \\ GF &= 10 \\ DG &= 2x + 1 \end{aligned}$$

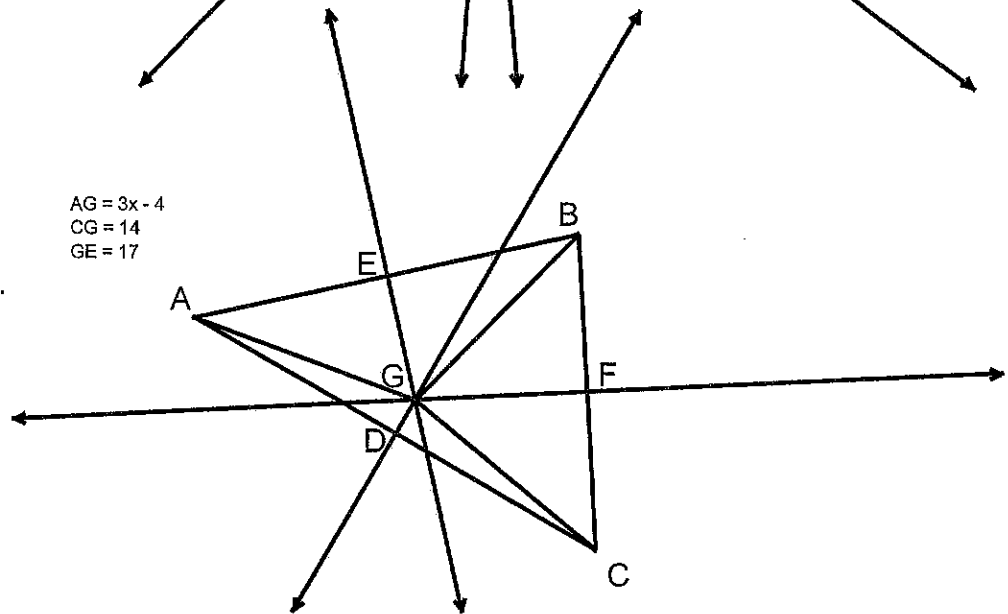
Mrs. Hayden



12. G is the circumcenter.

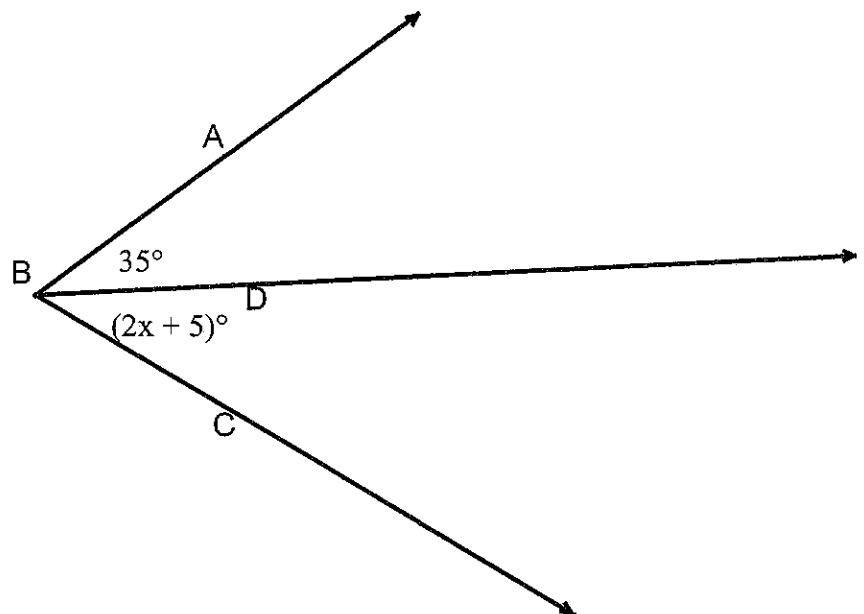
$x = \underline{\hspace{2cm}}$

$$\begin{aligned} AG &= 3x - 4 \\ CG &= 14 \\ GE &= 17 \end{aligned}$$



13. \overrightarrow{BD} is an angle bisector.

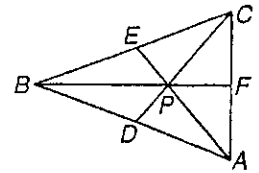
$x = \underline{\hspace{2cm}}$



5-1 Practice

Bisectors, Medians, and Altitudes

ALGEBRA In $\triangle ABC$, \overline{BF} is the angle bisector of $\angle ABC$, \overline{AE} , \overline{BF} , and \overline{CD} are medians, and P is the centroid.



1. Find x if $DP = 4x - 3$ and $CP = 30$.

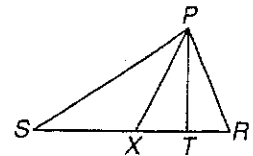
2. Find y if $AP = y$ and $EP = 18$.

3. Find z if $FP = 5z + 10$ and $BP = 42$.

~~4. If $m\angle ABC = x$ and $m\angle BAC = m\angle BCA = 2x - 10$, is \overline{BF} an altitude? Explain.~~

4. Find x if $AE = 27$ and $AP = 4x + 2$

ALGEBRA In $\triangle PRS$, \overline{PT} is an altitude and \overline{PX} is a median.

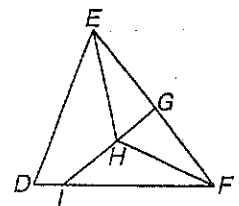


5. Find RS if $RX = x + 7$ and $SX = 3x - 11$.

6. Find RT if $RT = x - 6$ and $m\angle PTR = 8x - 6$.

ALGEBRA In $\triangle DEF$, \overline{GI} is a perpendicular bisector.

7. Find x if $EH = 16$ and $FH = 6x - 5$.



8. Find y if $EG = 3.2y - 1$ and $FG = 2y + 5$.

9. Find z if $m\angle EGH = 12z$.

COORDINATE GEOMETRY The vertices of $\triangle STU$ are $S(0, 1)$, $T(4, 7)$, and $U(8, -3)$. Find the coordinates of the points of concurrency of $\triangle STU$.

10. orthocenter

11. centroid

12. circumcenter

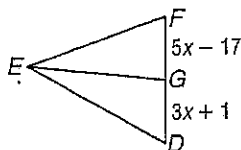
13. **MOBILES** Nabuko wants to construct a mobile out of flat triangles so that the surfaces of the triangles hang parallel to the floor when the mobile is suspended. How can Nabuko be certain that she hangs the triangles to achieve this effect?

5-1 Skills Practice

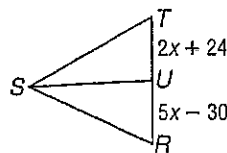
Bisectors, Medians, and Altitudes

ALGEBRA For Exercises 1-4, use the given information to find each value.

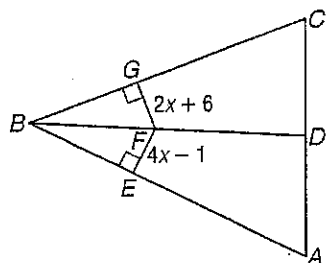
1. Find x if \overline{EG} is a median of $\triangle DEF$.



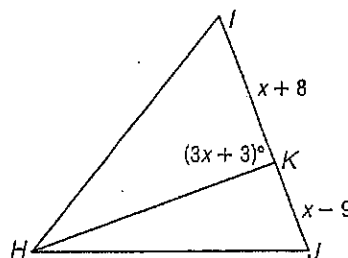
2. Find x and RT if \overline{SU} is a median of $\triangle RST$.



3. Find x and EF if \overline{BD} is an angle bisector.



4. Find x and IJ if \overline{HK} is an altitude of $\triangle HIJ$.



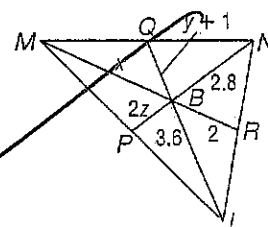
ALGEBRA For Exercises 5-7, use the following information.

In $\triangle LMN$, P , Q , and R are the midpoints of \overline{LM} , \overline{MN} , and \overline{LN} , respectively.

5. Find x .

6. Find y .

7. Find z .



ALGEBRA Lines a , b , and c are perpendicular bisectors of $\triangle PQR$ and meet at A .

8. Find x .

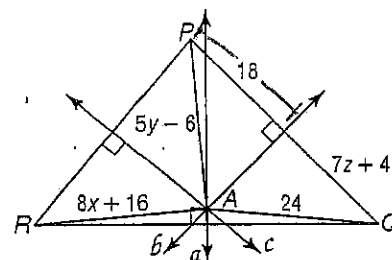
9. Find y .

10. Find z .

$$AR = 8x + 16$$

$$AP = 5y - 6$$

$$AQ = 24$$



COORDINATE GEOMETRY The vertices of $\triangle HIJ$ are $G(1, 0)$, $H(6, 0)$, and $I(3, 6)$. Find the coordinates of the points of concurrency of $\triangle HIJ$.

11. orthocenter

12. centroid

13. circumcenter